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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/748,919	12/27/2000	Chikayoshi Kamata	0941.65074	5081

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EXAMINER	
RENNER, CRAIG A	

ART UNIT	PAPER NUMBER
2652	19

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/748,919	KAMATA ET AL.	
	Examiner	Art Unit	
	Craig A. Renner	2652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7 and 13-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-7 and 13-21* is/are allowed.

6)☒ Claim(s) *22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12 March 2004 has been entered.

Drawings

2. The drawings were received on 12 March 2004. These drawings are accepted.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following is suggested: --MAGNETO-RESISTIVE SENSOR WITH OXIDIZATION-RESISTANT CONDUCTIVE LAYER BETWEEN CAP AND ELECTRODE OVERHANG--.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claim 22 is rejected under 35 U.S.C. 102(e) as being anticipated by Lin et al. (US 6,185,078).

Lin teaches a magneto-resistive magnetic sensor (200, for instance) comprising a magneto-resistive structure (includes 232, 234, 236 and 238) changing a resistance thereof in response to an external magnetic field, a cap layer (240), provided on a top surface of the magneto-resistive structure (as shown in FIG. 11, for instance); a pair of domain-controlling magnetic regions (each 252) disposed at both lateral sides of the magneto-resistive structure (as shown in FIG. 11, for instance), the domain-controlling magnetic regions having a magnetization pointing in a common direction; a pair of electrodes (each 258) provided on the pair of domain-controlling magnetic regions so as to extend on a top surface of the magneto-resistive structure (as shown in FIG. 11, for instance) and so as to oppose each other across a central part of the magneto-resistive structure (as shown in FIG. 11, for instance), the electrodes having respective overhang parts extending over the magneto-resistive structure (as shown in FIG. 11, for instance) so as to oppose each other with a gap therebetween (as shown in FIG. 11, for instance), the pair of electrodes injecting a sensing current into the magneto-resistive structure primarily via the top surface of the magneto-resistive structure (as shown in

FIG. 11, for instance), wherein each of the overhang parts covers the cap layer on the magneto-resistive structure in such a state that an oxidation-resistant conductive layer (256) is interposed between the cap layer and the overhang part (as shown in FIG. 11, for instance); and the pair of domain-controlling magnetic regions having a coercive force exceeding a coercive force of a ferromagnetic layer (232) used in the magneto-resistive structure as a free layer (i.e., the coercive force of Co-Pt-Cr exceeds that of Ni-Fe).

Pertinent Prior Art

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. This includes Baumgart et al. (US 5,287,238), which teaches a magneto-resistive sensor with a magnetically hard material layer (each 75) between a cap layer (73) and each of a pair of electrodes (each 76); Nishioka et al. (US 5,327,313), teaches a magneto-resistive sensor with a layer of Nb (part of each 20a) between a cap layer (3) and each of a pair of electrodes (another part of each 20a); Sakaguchi et al. (US 6,493,194), which teaches a magneto-resistive sensor with a low resistance layer (6d) between a cap layer (6c) and each of a pair of electrodes (each 7); and Gill (US 6,570,745), which teaches a magneto-resistive sensor with a CoPtCr layer (128) between a cap layer (72) and each of a pair of electrodes (each 94).

Allowable Subject Matter

7. Claims 1-7 and 13-21 are allowable over the prior art of record.

Response to Arguments

8. Applicant's arguments filed 12 March 2004 have been fully considered but they are not persuasive.

The applicant argues that Lin does not teach "a 'pair of domain-controlling magnetic regions having a coercive force exceeding a coercive force of a ferromagnetic layer used in the magneto-resistive structure as a free layer. This argument, however, is not found to be persuasive as Lin does teach a pair of domain-controlling magnetic regions (each 252) having a coercive force exceeding a coercive force of a ferromagnetic layer (232) used in the magneto-resistive structure as a free layer (i.e., the coercive force of Co-Pt-Cr exceeds that of Ni-Fe).

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig A. Renner whose telephone number is (703) 308-0559. The examiner can normally be reached on Tuesday-Friday 7:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Craig A. Renner
Primary Examiner
Art Unit 2652

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